UPLAND RESULTS AND SPINNING PERFORMANCE

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COTTON RESEARCH CENTER - Regional and Commercial Variety Yield Test.

The Regional Variety Testing Program is conducted in cooperation with California, New Mexico, and Texas (District 6). These regional tests include the commercial varieties grown in the areas plus experimental strains that are being considered for release. Yield results of this group of varieties is given in Table 1 together with the yields of the commercial strains that may be sold in the area.

In 1967, the growing season was somewhat cooler than usual, there was an infestation of lygus early in the season and later the pink bollworm invaded the fields. However, the yields of varieties grown in both 1966 and 1967 were nearly identical in some instances (e.g., Acala 1517D in both years). These environmental effects must be considered in the interpretation of the results.

TABLE 1

LINT PER ACRE - ARIZONA YIELD TESTS
COTTON RESEARCH CENTER - 1967

Test #1			Test #2		
Regional Variety			Supplemental Yield		
Variety	Lint/ Acre	Lint	Variety	Lint/ Acre	Lint
	lbs.	%		lbs.	%
Stoneville 7A	1424	36.0	Stoneville 213	1488	36.6
Coker 201	1266	36.9	Deltapine 16	1474	36.8
Imperial Acala	1133	34.3	Deltapine 15A	1452	38.9
Hopicala	1101	35.4	Stoneville 508-9083	1394	38.7
Acala SJ-1	1018	34.0	Deltapine 5540	1307	36.9
12302-589B	999	34.2	Stoneville 508-9008	1310	37.1
12302-IV	998	34.4	Stoneville 508-9117	1288	35.7
6020 (Arizona)	971	33.8	Coker 413-504	1201	35.0
E-364 (Texas)	968	34.1	Coker 413-68	1192	34.3
Acala 1517V	964	33.9	Hopicala	982	35.2
Acala 1517D	948	31.8	Del Cerro 503	874	31.5
6024 (Arizona)	941	34.4	Del Cerro 526	848	32.5
9170 (New Mexico)	929	31.9	Del Cerro 575	836	31.6
12309-89	912	33.4	Del Cerro 510	810	31.7
Del Cerro	881	31.9			
Paymaster 54B	836	35.8			
C of V (%)	7.03	1.53		4.64	1.61

MARANA - Regional Variety Yield Test

These results are a part of the Regional Testing program of the state but located in the higher elevation where Verticillium wilt is prevalent. It can be observed that the yield is directly related to the tolerance of the variety or strain to the Verticillium wilt pathogen. In 1967, the wilt damage was most severe late in the season. The pink bollworm damage did not exceed 5% and these were mainly the late bolls. A severe lygus infestation in the early square stage damaged the bottom crop.

TABLE 2

LINT PER ACRE - ARIZONA YIELD TESTS - MARANA 1967*

Test #1 Test #2

Regional Variety		Supplemental Yield	
Variety	Lint/ Acre	Variety	Lint/ Acre
	lbs.		lbs.
6020 (Arizona)	1038	Deltapine 5540-127	979
9170 (N. Mexico)	1001	Hopicala	930
E-364 (Texas)	999	Deltapine 16	922
6024 (Arizona)	964	Stoneville 508-9083	859
12302-IV	946	Stoneville 213	840
Hopicala	917	Del Cerro 526	835
Acala SJ-1	916	Stoneville 508-9008	834
Acala 1517V	882	Stoneville 508-9117	823
12302-589B	880	Deltapine 15A	759
12302-89	863	Coker 413-504	747
Acala 1517D	822	Coker 413-68	687
Coker 201	800	Del Cerro 503	629
Stoneville 7A	750	Del Cerro 510	550
Imperial Acala	549	Del Cerro 815	503
Del Cerro	511		
Paymaster 54B	490		

* The yields are based on 1966 lint percentages and therefore are essentially estimates of yield.

FIBER CHARACTERISTICS - Arizona Cottons.

The fiber characteristics are summarized in Table 3 for the Acala cottons produced in Arizona and offered to buyers of quality cottons. These data are from the 1966 Regional Variety Tests results for Arizona and show the performance a grower may expect in the Salt River and Marana areas. It can be noted that at the lower elevations (Salt River Valley), the fiber of all the varieties tend to become shorter, stronger, and possibly a little coarser.

TABLE 3

YIELD & FIBER DATA - SELECTED VARIETIES
ARIZONA YIELD TESTS - 1966

Variety	Yield lint/acre	Lint	UHM	Strength 1/8" Pressley	Mic.
	lbs.	%			
MARANA REGIONAL					
Hopicala	1224	37.4	1.10	3.76	4.36
Acala 4-42	1079	38.4	1.12	3.65	4.25
Acala SJ-1	1077	35.1	1.14	3.74	4.45
Acala Imperial	1063	35.5	1.08	3.49	4.38
Acala 1517D	1033	34.0	1.17	3.72	4.46
Stoneville 7A	1153	37.1	1.06	2.93	4.72
Deltapine Sm. Lf.	1249	38.3	1.08	3.01	4.69
Coker 201	1213	37.7	1.08	3.05	4.75
COTTON RESEARCH CENTER REGIONAL					
Hopicala	1122	35.2	1.10	4.18	4.24
Acala 4-42	1112	38.0	1.10	4.00	4.52
Acala SJ-1	1029	34.1	1.11	4.20	4.69
Acala Imperial	1228	34.4	1.08	3.86	4.74
Acala 1517D	946	32.5	1.19	4.21	4.49
Stoneville 7A	1264	35.5	1.04	2.91	5.06
Deltapine Sm. Lf.	1330	37.5	1.01	3.14	5.00
Coker 201	1269	36.5	1.04	3.16	4.97

ENVIRONMENTAL (DISEASE) EFFECTS ON YIELD.

The effect of environment (disease mainly) on yield is shown in Table 4. Those varieties possessing earliness, and likewise the least Verticillium wilt tolerance (Deltapine Smooth Leaf and Imperial Acala) have a definite yield superiority in the disease-free areas of the lower elevations. The growers located in areas where Verticillium wilt is prevalent might well consider the longer season wilt tolerant strains or varieties.

TABLE 4

ADVANCED STRAINS TEST
NONWILT & WILT YIELD COMPARISONS
ARIZONA - 1966

Variety or Strain	Wilt** Rating	Yields Lint/Acre		Nonwilt vs. Wilt
		Nonwilt	Wilt	
		lbs.	lbs.	
Deltapine Sm. Lf.	5	1267	1109	+158
6016 (Arizona)	3	1114	1070	+ 44
Imperial Acala	5	1105	868	+237
Hopicala	3	1096	1069	+ 27
6017 (Arizona)	2	1082	999	+ 83
Mix 4*	2	1079	1112	- 33
Mix 3*	3	1067	1037	+ 30
Mix 1*	2	1049	1074	- 25
6024 (Arizona)	2	1049	1003	+ 46
Mix 2*	1	985	1045	- 60
6020 (Arizona)	1	981	1082	-101
5915 (Arizona)	1	969	995	- 26

**1 - Tolerant - 5 completely susceptible and defoliated

*Mix 1 = 5909, 5915, 6016, 6017, 6020, 6024
2 = 6020, 5915
3 = 6016, 6017, 6024
4 = 6020, Hopicala

YARN STRENGTH AND SPINNING PERFORMANCE

The spinning performance of the Acala cottons grown in Arizona are compared in Tables 5 and 6. The microspinning tests shown in Table 5 were made at the Knoxville, Tennessee USDA Spinning laboratory and show the fiber uniformity and yarn strength of the Arizona grown Acala cottons. Strains from the Arizona cotton breeding program are presented in Table 6 together with the performance of Acala 4-42 as a check.

TABLE 5

MINIATURE SPINNING TESTS - SELECTED VARIETIES*
ARIZONA - 1966

	2.5%			Yarn
Variety	Length	U.I.	Mic.	Strength
Hopicala	1.14	48+	4.18	152
Acala 4-42	1.14-	48	4.23	144+
Acala SJ-1	1.17-	48	4.22	145
Imperial Acala	1.12+	47	4.42	140
Acala 1517D	1.22	48	4.30	158
Stoneville 7A	1.13	45	4.70	116
Coker 201	1.10+	46-	4.75	119

*Averages - 3 locations - Yuma, Phoenix, Marana

TABLE 6

SPINNING PERFORMANCE - ARIZONA STRAINS*
1966 CROP

Strains	22's	50's	Break Factor	Length 2.5%	Unif.	Yarn Appearance	Imperfections 22's	50's
Hopicala	144	56	2984	1.12	44	120	10	8
Acala 4-42	141	53	2876	1.12	47	120	10	4
6024 (Ariz.)	136	52	2796	1.14	46	115	12	6
5915 (Ariz.)	147	56	3017	1.19	46	120	10	6
Deltapine Sm. Lf.	117	41	2312	1.12	43	110	10	7

*Spun by Texas A & M University, AMS Spinning Laboratory

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